

What is claimed is:

- 1 1. Apparatus for surgically treating tissue, the apparatus comprising:
2 a pair of yoke-shaped members mounted in spaced array, with each member
3 including a slot extending inwardly between tines of the yoke from a forward edge
4 thereof, and with the slots of the members substantially transversely aligned;
5 a cutter mounted intermediate the spaced members for movement between
6 an open configuration in which the cutter is displaced from obstructing transverse
7 alignment of the slots, and a closed configuration in which a cutting edge of the
8 cutter passes through the transverse alignment of the slots; and
9 an actuator linked to the cutter for controlling movement thereof between the
10 open and closed configurations.
- 1 2. The apparatus as in claim 1 including a mounting structure disposed at
2 the distal end of an elongated body to support the members in spaced array with
3 the slots substantially aligned in a direction along an elongated axis of the body,
4 the mounting structure also supporting the cutter for movement intermediate the
5 members; and
6 the actuator extends along the body toward a proximal end thereof; and
7 further comprising:

8 a manual manipulator mounted near the proximal end of the body and linked
9 to the actuator for selectively moving the cutter between the open and closed
10 configurations in response to manual actuation of the manipulator.

1 3. The apparatus as in claim 2 in which the mounting structure includes
2 an anvil interposed between corresponding ones of the tines of each of the pair of
3 members displaced from obstructing a transverse alignment of the slots and
4 extending substantially to the forward edges of the members, with the cutting edge
5 of the cutter disposed to substantially engage the anvil in the closed configuration.

1 4. The apparatus according to claim 2 in which the members are formed
2 as substantially planar sheets with tines of each member extending distally from
3 the distal end of the body.

1 5. The apparatus according to claim 2 in which the width of each of the
2 slots convergently tapers inwardly from the forward edge.

1 6. The apparatus according to claim 2 in which the members are
2 mounted to extend distally in diverging orientation from the distal end of the body.

1 7. The apparatus according to claim 2 including electrical connections to
2 each of the members for applying electrocautery signals thereto.

1 8. The apparatus as in claim 2 in which the members are mounted in
2 spaced, substantially plane-parallel array and the cutter is mounted for movement
3 intermediate the members within a plane substantially parallel to the plane of a
4 member.

1 9. The apparatus as in claim 3 in which the cutter is disposed to move
2 translationally along a direction aligned with the elongated axis of the body and
3 laterally toward the anvil during transition from the open configuration to the
4 closed configuration.

1 10. The apparatus as in claim 8 in which the cutter includes a contoured
2 surface for engaging a reference surface to transform translational movement of the
3 cutter into translational and lateral movement relative to the anvil.

1 11. The apparatus as in claim 10 in which the contoured surface of the
2 cutter includes an edge thereof remote from the cutting edge disposed to engage
3 the reference surface that is fixed relative to the body for urging the cutting edge
4 toward the anvil in response to translational motion of the cutter in a direction
5 toward the proximal end of the body.

1 12. The apparatus as in claim 10 in which the actuator includes a resilient
2 rod rigidly attached to the cutter and including a distal portion thereof skewed from

3 an elongated axis of the rod to resiliently bias the cutter into the open
4 configuration.

1 13. The apparatus as in claim 2 in which the members are mounted in
2 laterally spaced array and the cutter is pivotally mounted for movement
3 intermediate the members within a plane substantially parallel to a plane of a
4 member.

1 14. Apparatus for surgically treating tissue, the apparatus comprising:
2 an outer loop member mounted at a distal end of an elongated body;
3 an inner loop member mounted at the distal end of the elongated body,
4 spaced from the outer loop member and intersecting an area confined by the outer
5 loop member;
6 a cutter mounted intermediate the inner and outer loop members and spaced
7 away therefrom for movement between an open configuration in which the cutter
8 is displaced from obstructing a region between areas confined by the inner and
9 outer loop members, and a closed configuration in which the cutter transverses said
10 region; and
11 an actuator linked to the cutter for controlling movement thereof between the
12 open and closed configuration.

1 15. The apparatus according to claim 14 in which the cutter includes a
2 hook-shaped cutting edge disposed to traverse said region between the inner and
3 outer loop members during movement between the open and closed configurations.

1 16. The apparatus according to claim 14 in which the inner and outer loop
2 members are conductive to form electrodes for receiving cauterizing electrical
3 signal applied thereto.

1 17. Apparatus for surgically treating tissue, the apparatus comprising:
2 a cutter mounted for translational movement relative to a distal end of an
3 elongated supporting body, the cutter including a proximal cutting edge disposed
4 substantially normally to the direction of translational movement thereof between
5 an open configuration in which the cutting edge is spaced away from the distal end,
6 and a closed configuration in which the cutting edge substantially abuts the distal
7 end;

8 a loop member extending from the distal end and disposed about and away
9 from the cutter to confine an area overlaying the cutting edge; and

10 an actuator linked to the cutter for controlling movement thereof between the
11 open and closed configurations.

1 18. The apparatus according to claim 17 in which the loop member is
2 skewed relative to the direction of translational movement of the cutter to
3 substantially converge with the cutter near the distal end.

1 19. The apparatus according to claim 17 including a resilient layer
2 disposed at the distal end of the body to abut the cutting edge in the closed
3 configuration.

1 20. The apparatus according to claim 18 including an actuator linked to
2 the loop member for selectively altering the skew and area of the loop member
3 overlaying the cutter.

1 21. Apparatus for surgically treating tissue, the apparatus comprising:
2 a tissue cutter mounted at a distal end of an elongated body for angular
3 rotation about an axis substantially aligned with the elongated body;
4 a manual actuator mounted near a proximal end of the body for rotation at
5 one radius about an axis substantially aligned with the elongated body;
6 an element coupled to the manual actuator for rotation therewith at another
7 radius shorter than the one radius about an axis substantially aligned with the
8 elongated body; and

9 linkage coupling the element and the tissue cutter for rotating the tissue
10 cutter through one angle in response to rotation of the actuator through a smaller
11 angle than said one angle.

1 22. Apparatus according to claim 21 in which the manual manipulator
2 includes a first member configured for actuation substantially in alignment with the
3 elongated body and coupled thereto to selectively advance distally and retract
4 proximally the tissue cutter, and includes a second member configured for
5 actuation along a path substantially in alignment with the elongated body, and
6 coupled to a blade of the tissue cutter for relatively moving the blade of the tissue
7 cutter through a tissue-cutting movement in response to movement in a distal
8 direction of the second member relative to the first member.

1 23. Apparatus for the surgical treatment of tissue, the apparatus
2 comprising:
3 a tissue-dissecting tip mounted at a distal end of an elongated body and
4 having exterior walls for engaging tissue that converge toward a distal apex;
5 a tissue cutter including a first cutter blade having a cutting edge positioned
6 in substantial alignment with a portion of the exterior walls and oriented toward the
7 distal apex, and including a second cutter blade mounted for relative movement

8 with respect to the first cutter blade to cooperate therewith in cutting tissue
9 disposed between the first and second cutter blades; and
10 an actuator coupled to the second cutter blade for moving the second cutter
11 blade relative to the first cutter blade in response to translational movement of the
12 actuator in a direction substantially aligned along the elongated body.

1 24. Apparatus as in claim 23 in which the second cutter blade is pivotally
2 mounted relative to the first cutter blade to cooperate therewith in shearing tissue
3 in scissor-like manner responsive to translational movement of the actuator.

1 25. Apparatus for surgically treating tissue, the apparatus comprising:
2 a tissue-dissecting tip mounted at a distal end of an elongated body having a
3 lumen extending therethrough substantially between the distal end and a proximal
4 end thereof;
5 a fluid outlet formed near the distal end of the elongated body and
6 communicating with the lumen extending through the body; and
7 a fluid inlet disposed near the proximal end of the body in fluid
8 communication with said lumen for supplying fluid under pressure received thereat
9 to the fluid outlet near the distal end of the body.

1 26. The apparatus as in claim 25 in which the lumen terminates interiorly
2 of the tissue-dissecting tip; and

3 the fluid outlet communicates with the interior of the tip for venting from the
4 tip fluid under pressure supplied thereto along the lumen.

1 27. The apparatus as in claim 26 in which the tissue-dissecting tip is
2 transparent, and said lumen is aligned with the tip to receive an endoscope therein
3 for visualizing tissue dissection through the tip, and to supply fluid under pressure
4 to the interior of the tip through said lumen.

1 28. The apparatus as in claim 25 in which the fluid outlet includes a
2 spacer structure interposed between an exterior surface of the elongated body near
3 the distal end thereof and the interior of the tissue-dissecting tip for supplying fluid
4 under pressure therethrough at a location displaced proximally from the distal
5 extent of the tissue-dissecting tip.

1 29. The apparatus as in claim 10 in which the reference surface includes a
2 wear-resistant element disposed at the distal end of the body to engage the
3 contoured surface of the cutter.

1 30. The apparatus as in claim 10 in which the reference surface is
2 disposed to resiliently bias the cutter toward the anvil in engagement with at least a
3 portion of the contoured surface of the cutter.